AR 201-12549 b30

ROBUST SUMMARY
ALKYL SULFIDE CATETGORY
CAS # 67124-09-8
GENETIC TOXICITY ELEMENTS: GENETIC TOXICITY IN VITRO

Test Substance	
CAS #	CAS# 67124-09-8
Chemical Name	2-propanol, 1-(tert-dodecylthio)-
Remarks	100% purity This chemical is also referred to as propanol/dodecylthio derivative in the HERTG's Test Plan for Alkyl Sulfide Category. For more information on the chemical, see Section 2.0 "Chemical Description of Alkyl Sulfide Category" in HERTG's Test Plan for Alkyl Sulfide Category.
Method	
Method/Guideline followed	Consistent with EPA guidelines outlined in OPPTS 870.5375
Test Type	In vitro chromosomal aberration assay
System of testing	Non-bacterial
GLP (Y/N)	Yes
Year (Study Performed)	1989
Species/Strain	Chinese hamster ovary (CHO) cells
Metabolic activation	S9 fraction prepared from livers of Aroclor 1254-induced Sprague-Dawley rats
Concentrations	Non-activated assay: 0, 0.05, 0.15, 0.5, 1.5, 5, 15, 50, 495, 1490, 4950 ug/ml Activated assay: 0, 0.05, 0.15, 0.5, 1.5, 15, 50 and 150 ug/ml
Statistical methods	Metaphase cells were analyzed for chromosomal aberrations by 100x objective microscopy. The mitotic index was determined by counting a minimum of 500 total cells. Coordinates of cells with aberrations were recorded. The data were analyzed statistically using the method described in Margolin et al., Statistical analysis for in vitro cytogenetic assay using Chinese hamster ovary cells, Environ Mutagen 8:183-204, 1986.
Remarks field for test conditions	No significant deviations from guideline protocols
Results	
Remarks	The test material was investigated for its ability to induce chromosomal aberrations in Chinese hamster ovary (CHO) cells in the presence and absence of a rat liver homogenate metabolic activation system. CHO cells were seeded at a density of 0.5 or 0.75 x 10^6 and maintained in essential culture medium in tissue culture flasks. Twenty-four hours later, the cells were exposed to test material, positive or negative controls. The compound was dissolved in DMSO, which served also as the negative control. The test concentrations that were tested for the induction of aberrations ranged from 0.05 to 4950 ug/ml in the non-activated assays, and from 0.05 to 150 ug/ml in the activated assays. All test sample concentration and controls were tested in duplicate flasks. Two assay periods were used, 10 and 20 hours, which totaled four independent experiments. The data were analyzed using two methods. Two hours prior to harvest, vinblastine

	sulfate was added to arrest the cells in metaphase. At the end of the incubation period, metaphase cells were collected by treatment with trypsin, concentrated by centrifugation, lysed in hypotonic solution, fixed in methanol: acetic acid and stained with Giemsa. The first used the traditional method in which gaps were not counted as chromosomal aberrations while the second method counted gaps as chromosomal aberrations. One hundred cell were scored from each duplicate flask for each concentration tested. The test substance was toxic to the CHO cells in the non-activated assays at concentrations higher than 15 ug/ml for the 20-hour exposure period (86% reduction in the mitotic index), and at 50 ug/ml for the 10-hour exposure period (.90% reduction of the mitotic index). There was no significant increase in the percentages of aberrant cells in the 10 (4% vs. 4.5% vehicle control) and 20-hour (4% vs 3% vehicle control) non-activated assays. In contrast, the positive control mitomycin C (0.3 ug/ml) caused a significant increase in the percentage of cells with aberrations (approximately 85%). In the activated assays, cells were exposed simultaneously to test material and S9 microsomal fraction with isocitrate cofactors for 10-20 hours. After this period the cells were washed, re-incubated for 8 hours prior to metaphase arrest and chromosomal staining. Concentrations greater than 50 ug/ml for the 20-hour period and 15 ug/ml for the 10-hour exposure period were toxic (> 90% reduction in mitotic index for each incubation period). There was no increase in the percentage of aberrant cells in the 20-hour activated experiment (4.6% vs 4.5% vehicle control). A slight increase in aberrant cells was observed at 5 ug/ml in the 10-hour activated assay, however, this increase was not statistically significant (17.8% vs 14.5 % vehicle control). The positive control (benzo[a]pyrene; 15 ug/ml) caused aberration in nearly 100% of CHO cells in the 20-hour activated assay and 46% in the 10-hour activated assay, thus, demonstrating the efficacy of the metabolic activation system.
Conclusions	The test material was assayed for its ability to induce chromosomal aberrations in in vitro culture of Chinese hamster ovary cells in the presence and absence of a metabolic activation system. At the concentrations tested and under the conditions of the assay, the test material was considered to be non-clastogenic.
Data Quality	Reliable without restriction (Klimisch Code)
References	This robust summary was prepared from an unpublished study by an individual member company of the HERTG (the underlying study contains confidential business information).
Other	Updated: 12-27-99